

## CLAIMS:

1. A digital to analog converter comprising:
  - at least two conversion elements;
  - and a conversion element selection unit for selecting in response to a multibit digital input signal from said at least two conversion elements a number of conversion
  - 5 elements for connection to an output unit for outputting an analog signal: and
  - a calibration unit for compensating mismatch between respective ones of said at least first and second conversion elements,
  - wherein said calibration unit is adapted to perform said mismatch compensation in response to a comparison of an output from at least one of said conversion
  - 10 elements with an output from a reference conversion unit.
2. A digital to analog converter according claim 1, wherein said calibration unit comprises a unit for calibrating said output of said at least one conversion element in response to said comparison of said output of said at least one conversion element with said
- 15 output of said reference conversion means.
3. A digital to analog converter according to claim 1, wherein said calibration unit comprises a unit for adjusting said conversion element selection unit in response to said comparison.
- 20 4. A digital to analog converter according to claim 1, wherein said calibration unit comprises a unit for determining the difference between said output of said at least one conversion element and said output of said reference conversion element.
- 25 5. A digital to analog converter according to claim 2, wherein said calibration unit is adapted to adjust the duty cycle of the respective latch connecting said at least one conversion element to said output unit in response to said comparison.

6. A digital to analog converter according to claim 2, wherein said calibration unit is adapted to adjust the switching delay of the respective latch connecting said at least one conversion element to said output unit in response to said comparison.
- 5 7. A digital to analog converter according to claim 1, wherein said reference conversion element is additional to said at least two conversion elements.
8. A digital to analog converter according to claim 1, wherein said reference conversion element is selected from said at least two conversion elements.
- 10 9. A method of converting a digital signal to an analog signal converter comprising the steps of:
- providing a plurality of conversion elements and a reference conversion element;
  - 15 - in response to said digital signal selecting from said at least two conversion elements a number of conversion elements;
  - combining the outputs of said selected conversion elements to provide an analog signal; and
  - calibrating for mismatch between respective ones of said plurality of
  - 20 conversion elements,
  - wherein an output from at least one of said conversion elements is compared with an output from a reference conversion unit and said calibrating step is carried out in response to said comparison.
- 25 10. The method of converting a digital input signal into an analog output signal according to claim 9, wherein said calibrating step includes the further step of modifying said selecting step in response to said comparison.
11. The method of converting a digital input signal into an analog output signal
- 30 according to claim 12, wherein said calibrating step includes the further step of calibrating the output of said at least one conversion element in response to said comparison.
12. A mismatch calibration unit for a digital to analog converter comprising:

- a comparison unit for comparing outputs of first and second conversion units when input to the unit, and

- a calculation unit for providing mismatch calibration signal to said conversion units when connected to the output of said calculation unit in response to said comparison.

13. A mismatch calibration unit according to claim 12, wherein said calibration signal is representative of an amount by which one of said outputs must be adjusted so as to calibrate for static mismatch of said conversion elements.

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14. A mismatch calibration unit according either of the preceding claims 12 or 13, wherein said calibration signal is representative of an adjustment amount of the duty cycle or of the switching delay of a latch connecting one of said conversion elements to an output unit so as to calibrate for dynamic mismatch of said conversion elements.